

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number
WO 2005/084211 A2

(51) International Patent Classification: **Not classified**

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(21) International Application Number:
PCT/US2005/005963

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(22) International Filing Date: 25 February 2005 (25.02.2005)

(25) Filing Language: English

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(26) Publication Language: English

(30) Priority Data:
60/548,563 27 February 2004 (27.02.2004) US

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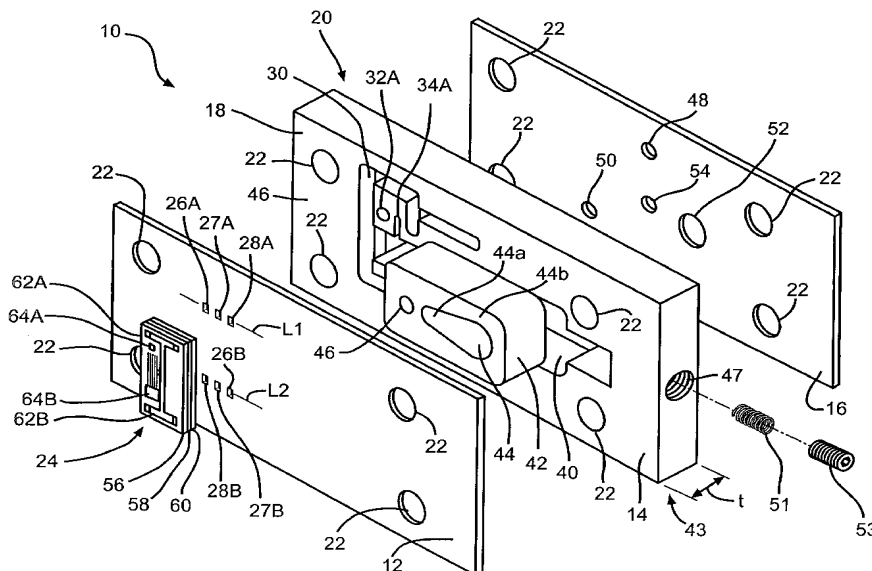
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(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: HYBRID MICRO/MACRO PLATE VALVE



(57) Abstract: A microvalve device includes a microvalve pilot valve and a pilot operated valve. The microvalve pilot valve includes a first layer, a third layer having a plurality of openings formed therethrough, and a second layer positioned between the first and third layer. The second layer includes a chamber in fluid communication with the openings, and includes a movable member for selectively controlling fluid flow through the chamber and between the openings. The pilot operated valve includes a first plate, a third plate, and a second plate positioned between the first plate and the third plate. The first plate includes a plurality of ports in fluid communication with the openings of the microvalve, a pressure apply channel, and a pressure release channel. The second plate includes

the pressure apply channel and the pressure release channel, both of the channels being in fluid communication with a spool portion of the pilot operated valve. The spool portion is selectively movable to allow flow from a second source of fluid to a load. The third plate includes a first source port in fluid communication with a first fluid source, the pressure apply channel, one of the first plate ports, and one of the microvalve openings. A first reservoir port of the third plate ports, and one of the microvalve openings. A first reservoir port of the third plate is in fluid communication with a first reservoir, the pressure release channel, one of the first plate ports, and one of the microvalve openings. A second source port of the third plate is in fluid communication with the second source of fluid. A load port of the third plate is in fluid communication with the load.

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ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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